ABSTRACT OF THE DISCLOSURE

A detection apparatus includes a differential interference contrast microscope, a device for changing the amount of retardation between the two polarized components, a device for photographing the image of an object to be observed, and a device for performing a calculation with respect to the image captured by this photographing device. In the detection apparatus, amounts of retardation between two polarized components split in an illumination optical system of the differential interference contrast microscope are detected to form two differential interference contrast images relative to the object in which the amounts of retardation between the polarized components are equal, but have different signs. Subsequently, in the two differential interference contrast images, a differential calculation and a summed calculation are performed with regard to respective corresponding pixels to obtain a differential image and a summed image. The ratio of image information between the differential image and the summed image is calculated, and from the result of this calculation, image information in a predetermined range is extracted. In this way, the phase of the object can be detected.